

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2017/2018 SESSION

THN3031 – HIGH SPEED NETWORKS

(All Sections / Groups)

2 MARCH 2018

09.00 – 11.00

(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 4 printed pages including cover page with 5 questions only.
2. Attempt **ALL** questions. All questions carry equal marks and the distribution of marks for each question is given.
3. Please write all your answer in the Answer Booklet provided.

Question 1 [12 marks]

- (a) Explain briefly what is packet switching(1 mark). State the advantages and drawbacks of this switching method (2 marks).

[3 marks]

- (b) Give two differences between TCP and UDP in data transmission

[2 marks]

- (c) An IP datagram with size 7660 bytes is to be fragmented and then transmitted through an Ethernet with a maximum payload of 1500 bytes. What is the actual data size carried by this IP datagram (exclude the 20-bytes IP header)? How many fragments are needed to transmit this datagram through the Ethernet? Show the total length, more flag and fragment offset values in each resulting fragment.

[4 marks]

- (d) Explain the two categories, i.e. DTE and DCE in Frame relay devices (2 marks). Draw a figure to show the relation between the frame relay devices (1 mark).

[3 marks]

Question 2 [12 marks]

- (a) Define the term NAS in storage area network. Give two protocols that are used in NAS.

[2 marks]

- (b) Explain briefly any two layers in SAN connectivity.

[6 marks]

- (c) Describe (with the help of figures) how ATM can solve the packet delay problem in networks.

[4 marks]

Continued.....

Question 3 [12 marks]

- (a) Explain briefly how Wavelength Division Multiplexing (WDM) works? Draw a figure with explanation. [2 marks]
- (b) Describe the function of OADM in a WDM network. [2 marks]
- (c) State the two main characteristics of Optical Burst Switching. [3 marks]
- (d) Describe the difference between the two SONET connections, i.e. section and line. [2 marks]
- (d) Calculate the user data rate of an STS-1 signal (without considering the overheads). [3 marks]

Question 4 [12 marks]

- (a) In queueing system, describe the general representation of the following Kendall's notation.
X/Y/N/B [2 marks]
- (b) Describe what is explicit congestion signaling. Explain briefly the two types of explicit congestion signaling. [3 marks]
- (c) State and explain briefly the two least-cost routing algorithms. Which least-cost routing algorithm is used by OSPF? [5 marks]
- (d) What are the problems that can be associated with fluttering in IP packets? [2 marks]

Continued.....

Question 5 [12 marks]

- (a) Describe briefly the three protocols that used in multicast routing. [3 marks]
- (b) What are the drawbacks for FIFO queuing discipline? [2 marks]
- (c) What are the three reservation styles defined in RSVP? [3 marks]
- (d) State the four primary functions of RTP data transfer protocol. [4 marks]

End of Paper

